

Statistical Analysis Plan (SAP)

Psychophysiological Effects of Controlled Respiration

Melis Yilmaz Balban, Eric Neri, Manuela M. Kogon, Lara Weed, Bitu Nouriani, Booil Jo, Gary Holl, Jamie M. Zeitzer, David Spiegel, Andrew D. Huberman

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All outcome measures will be primarily compared between Mindfulness Meditation group and Breathwork groups combined. If statistically significant differences are detected, individual Breathwork groups will be compared to the Mindfulness Meditation group as a secondary objective.

Outcome measures: State Anxiety, PANAS Positive, PANAS Negative

Changes in STAI state anxiety and PANAS positive and negative affect scores will be calculated by subtracting the pre-condition score from the post-condition score daily for each participant. Average daily change scores will be calculated by averaging the daily changes in state anxiety and PANAS scores of each participant over the number of days they followed the protocol, then averaging this across all subjects within a group. For each group, average daily post-scores per person will be compared to average daily pre-scores with a paired Wilcoxon test or t-test (depending on normality of the distribution) to assess if there was a significant change between pre- and post- conditions.

A mixed modeling approach will be used to compare changes across groups using protocol type as a fixed categorical effect. Daily change between pre and post protocol for each subject will be used as the main unit for modeling. All variables will be centered by subtracting the mean before feeding into the model. Data analysis will be performed in R and MATLAB.

Outcome measures: Trait Anxiety, Daytime Sleep Related Disturbance

Changes in both trait anxiety and sleep-related daytime disturbance will be calculated by subtracting the pre-score from the post-score and comparing across groups with unpaired t-test. Pre-scores will also be compared to post-scores within each group with a paired t-test.

Outcome measures: Resting Heart Rate, Heart Rate Variability, Respiratory Rate, WHOOP Sleep Score, Sleep duration, Sleep Efficiency

Daily resting heart rate (RHR), respiratory rate (RR), and heart rate variability (HRV, root mean square of successive differences between normal heartbeats, RMSSD), sleep duration, sleep efficiency and sleep scores will be obtained from WHOOP. Changes in these measurements will be calculated by calculating the slope of the regression line over the course of the study. Differences in slope between groups will be compared using unpaired t-test or Wilcoxon test.

Secondary Exploratory Outcome Measures: Adherence to Protocol

Number of days subjects did their exercises out of the 28 days assigned will be counted based on the number of days they will fill in their pre and post exercise surveys (STAI State-Trait Anxiety and PANAS Positive Negative Affect.). Percentage of days exercises were completed will be compared across groups

with unpaired t-tests. For modeling purposes, the number of days exercises were completed up to each day will be used as a measure of adherence in the model.

Other Pre-specified Outcome Measures: Debriefing survey

The de novo survey is composed of 11 items regarding participants' perspectives on the quality of the interventions and their experience with the interventions. For four of the items, participants rate their response on a Likert scale and seven of the items are open-ended measures. The Likert scale answers will be analyzed by calculating the percentage of responses at each Likert level and comparing the percentages across groups. For open-ended measures categories (e.g. Grounding, Focusing, Some Challenges) and sub-categories (e.g. for Grounding: Centering, Leveling, Stabilizing, Steadying) will be created based on emerging themes from the participants' responses. Three raters, blind to the rating of the other raters, will place participants' responses to the emerging categories. Percentages in each category will be calculated. T-tests will be used to compare across groups if sufficient number of responses are received to this optional survey. Otherwise the analysis will be qualitative.